

Claims

- [c1] A device for manipulating a molecule *in vivo* relative to a target tissue comprising: an elongated member comprising a generally cylindrical nonconductive core post and at least two discrete electrodes; the least two discrete electrodes being circumferential rings disposed about the core and in axially spaced relation along the elongated member, each electrode being in circuit communication with a respective portion of a source of electrical energy, the discrete electrodes being configured to establish a first electromagnetic field *in vivo* between selected electrodes sufficient to cause an electromigration of a molecule relative to a target tissue and a second electromagnetic field sufficient to cause transient permeability of a cell membrane within the target tissue; and an insulating material interposed axially between the electrodes for achieving relative electromagnetic isolation of the electrodes.
- [c2] The device recited in Claim 1, wherein the second field is higher than the first field.
- [c3] The device recited in Claim 1, wherein the elongated member is geometrically adapted for insertion into the target tissue.
- [c4] The device recited in Claim 1, wherein the core has a tip to protrude beneath a bottom of the outer electrode.

- [c5] The device recited in Claim 1, wherein the member comprises a plurality of members configurable to surround a periphery of at least a portion of the target tissue.
- [c6] The device recited in Claim 1, wherein the member comprises a pair of members configured in spaced-apart relation and adapted to provide at least one pair of opposite-polarity voltages approximately simultaneously on at least one electrode on each member.
- [c7] The device recited in Claim 1, further comprising means for selectively activating a selected plurality of electrodes in a predetermined pattern.
- [c8] The device recited in Claim 1, wherein the electrodes are substantially simultaneously activatable.
- [c9] The device recited in Claim 1, wherein the member has a lumen therethrough extending from an opening adjacent a top of the member to a portal positioned along the member beneath the top opening for passing a substance therethrough to the target tissue.
- [c10] The device recited in Claim 11, wherein the portal is positioned adjacent a bottom tip of the member.
- [c11] The device recited in Claim 11, wherein the portal is positioned along the member adjacent an electrode.

[c12] A device for manipulating a molecule *in vivo* relative to a target tissue comprising: an elongated member comprising a generally cylindrical nonconductive core post and at least two discrete electrodes; the least two discrete electrodes being circumferential rings disposed about the core and in axially spaced relation along the elongated member, each electrode being in circuit communication with a respective portion of a source of electrical energy, the discrete electrodes being configured to establish a first electromagnetic field *in vivo* between selected electrodes sufficient to cause at least one of an electromigration of a molecule relative to a target tissue and transient permeability of a cell membrane within the target tissue; and an insulating material interposed axially between the electrodes for achieving relative electromagnetic isolation of the electrodes.